

a.) Amendments to the Claims

---

Claims 1-22 (Cancelled)

23. (New) A process for producing isoprenoid compounds comprising the steps of:

selecting DNA encoding a protein having activity to catalyze a reaction to produce 2-C-methyl-D-erythritol 4-phosphate from 1-deoxy-D-xylulose 5-phosphate;

integrating the DNA into a vector;

introducing the vector containing the DNA into a prokaryotic host cell to produce a transformant;

culturing the transformant in a medium;

allowing the transformant to produce and accumulate isoprenoid compounds; and

recovering the isoprenoid compounds.

24. (New) A process for producing isoprenoid compounds comprising the steps of:

selecting a vector containing DNA encoding a protein having activity to catalyze a reaction to produce 2-C-methyl-D-erythritol 4-phosphate from 1-deoxy-D-xylulose 5-phosphate;

introducing the vector into a prokaryotic host cell to produce a transformant;

culturing the transformant in a medium;

allowing the transformant to produce and accumulate isoprenoid compounds; and

recovering the isoprenoid compounds.

25. (New) A process for producing isoprenoid compounds comprising the steps of:

selecting a prokaryotic transformant harboring a vector containing DNA encoding a protein having activity to catalyze a reaction to produce 2-C-methyl-D-erythritol 4-phosphate from 1-deoxy-D-xylulose 5-phosphate;

culturing the transformant in a medium;

allowing the transformant to produce and accumulate isoprenoid compounds; and

recovering the isoprenoid compounds.

26. (New) The process according to any one of claims 23-25, wherein the DNA encoding a protein having activity to catalyze a reaction to produce 2-C-methyl-D-erythritol 4-phosphate from 1-deoxy-D-xylulose 5-phosphate encodes a protein comprising an amino acid sequence of SEQ ID NO:5 or 30.

27. (New) The process according to any one of claims 23-25, wherein the DNA encoding a protein having activity to catalyze a reaction to produce 2-C-methyl-D-erythritol 4-phosphate from 1-deoxy-D-xylulose 5-phosphate is a DNA that hybridizes with a nucleotide sequence consisting of SEQ ID NO:10 or 31 in the presence of 0.7 to 1.0 mol/l NaCl at 65°C, followed by washing in a 0.1 to 2-fold SSC solution at 65°C.

28. (New) The process according to claim 27, wherein the DNA has a nucleotide sequence of SEQ ID NO:10 or 31.

29. (New) The process according to any one of claims 23-25, wherein the isoprenoid compound is selected from the group consisting of ubiquinone, vitamin K<sub>2</sub> and carotenoids.

30. (New) The process according to claim 26, wherein the isoprenoid compound is selected from the group consisting of ubiquinone, vitamin K<sub>2</sub> and carotenoids.

31. (New) The process according to claim 27, wherein the isoprenoid compound is selected from the group consisting of ubiquinone, vitamin K<sub>2</sub> and carotenoids.

32. (New) The process according to claim 28, wherein the isoprenoid compound is selected from the group consisting of ubiquinone, vitamin K<sub>2</sub> and carotenoids.